

professional specialist under the direction of the professional engineer, shall periodically inspect the fill during construction. The professional engineer or specialist shall be experienced in the construction of earth and rock fills.

(1) Such inspections shall be made at least quarterly throughout construction and during critical construction periods. Critical construction periods shall include at a minimum: (i) Foundation preparation, including the removal of all organic material and topsoil; (ii) placement of underdrains and protective filter systems; (iii) installation of final surface drainage systems; and (iv) the final graded and revegetated fill. Regular inspections by the engineer or specialist shall also be conducted during placement and compaction of fill materials.

(2) The qualified registered professional engineer shall provide a certified report to the regulatory authority promptly after each inspection that the fill has been constructed and maintained as designed and in accordance with the approved plan and this chapter. The report shall include appearances of instability, structural weakness, and other hazardous conditions.

(3)(i) The certified report on the drainage system and protective filters shall include color photographs taken during and after construction, but before underdrains are covered with excess spoil. If the underdrain system is constructed in phases, each phase shall be certified separately.

(ii) Where excess durable rock spoil is placed in single or multiple lifts such that the underdrain system is constructed simultaneously with excess spoil placement by the natural segregation of dumped materials, in accordance with § 817.73, color photographs shall be taken of the underdrain as the underdrain system is being formed.

(iii) The photographs accompanying each certified report shall be taken in adequate size and number with enough terrain or other physical features of the site shown to provide a relative scale to the photographs and to specifically and clearly identify the site.

(4) A copy of each inspection report shall be retained at or near the mine site.

(i) *Coal mine waste.* Coal mine waste may be disposed of in excess spoil fills if approved by the regulatory authority and, if such waste is—

(1) Placed in accordance with § 817.83;

(2) Nontoxic and nonacid forming; and

(3) Of the proper characteristics to be consistent with the design stability of the fill.

(j) *Underground disposal.* Excess spoil may be disposed of in underground mine workings, but only in accordance with a plan approved by the regulatory authority and MSHA under § 784.25 of this chapter.

(k) *Face-up operations.* Spoil resulting from face-up operations for underground coal mine development may be placed at drift entries as part of a cut and fill structure, if the structure is less than 400 feet in horizontal length, and designed in accordance with § 817.71.

[48 FR 32927, July 19, 1983, as amended at 48 FR 44781, Sept. 30, 1983]

§ 817.72 Disposal of excess spoil: Valley fill/head-of-hollow fills.

Valley fills and head-of-hollow fills shall meet the requirements of § 817.71 and the additional requirements of this section.

(a) *Drainage control.* (1) The top surface of the completed fill shall be graded such that the final slope after settlement will be toward properly designed drainage channels. Uncontrolled surface drainage may not be directed over the outslope of the fill.

(2) Runoff from areas above the fill and runoff from the surface of the fill shall be diverted into stabilized diversion channels designed to meet the requirements of § 817.43 and to safely pass the runoff from a 100-year, 6-hour precipitation event.

(b) *Rock-core chimney drains.* A rock-core chimney drain may be used in a head-of-hollow fill, instead of the underdrain and surface diversion system normally required, as long as the fill is not located in an area containing intermittent or perennial streams. A rock-core chimney drain may be used in a valley fill if the fill does not exceed 250,000 cubic yards of material and upstream drainage is diverted around the fill. The alternative rock-core

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chimney drain system shall be incorporated into the design and construction of the fill as follows:

(1) The fill shall have, along the vertical projection of the main buried stream channel or rill, a vertical core of durable rock at least 16 feet thick which shall extend from the toe of the fill to the head of the fill, and from the base of the fill to the surface of the fill. A system of lateral rock underdrains shall connect this rock core to each area of potential drainage or seepage in the disposal area. The underdrain system and rock core shall be designed to carry the anticipated seepage of water due to rainfall away from the excess spoil fill and from seeps and springs in the foundation of the disposal area. Rocks used in the rock core and underdrains shall meet the requirements of §817.71(f).

(2) A filter system to ensure the proper long-term functioning of the rock core shall be designed and constructed using current, prudent engineering practices.

(3) Grading may drain surface water away from the outslope of the fill and toward the rock core. In no case, however, may intermittent or perennial streams be diverted into the rock core. The maximum slope of the top of the fill shall be 33h:lv (3 percent). A drainage pocket may be maintained at the head of the fill during and after construction, to intercept surface runoff and discharge the runoff through or over the rock drain, if stability of the fill is not impaired. In no case shall this pocket or sump have a potential capacity for impounding more than 10,000 cubic feet of water. Terraces on the fill shall be graded with a 3 to 5 percent grade toward the fill and a 1 percent slope toward the rock core.

[48 FR 32928, July 19, 1983]

§817.73 Disposal of excess spoil: Durable rock fills.

The regulatory authority may approve the alternative method of disposal of excess durable rock spoil by gravity placement in single or multiple lifts, provided the following conditions are met:

(a) Except as provided in this section, the requirements of §817.71 are met.

(b) The excess spoil consists of at least 80 percent, by volume, durable, nonacid- and nontoxic-forming rock (*e.g.*, sandstone or limestone) that does not slake in water and will not degrade to soil material. Where used, non-cemented clay shale, clay spoil, soil or other nondurable excess spoil material shall be mixed with excess durable rock spoil in a controlled manner such that no more than 20 percent of the fill volume, as determined by tests performed by a registered engineer and approved by the regulatory authority, is not durable rock.

(c) A qualified registered professional engineer certifies that the design will ensure the stability of the fill and meet all other applicable requirements.

(d) The fill is designed to attain a minimum long-term static safety factor of 1.5, and an earthquake safety factor of 1.1.

(e) The underdrain system may be constructed simultaneously with excess spoil placement by the natural segregation of dumped materials, provided the resulting underdrain system is capable of carrying anticipated seepage of water due to rainfall away from the excess spoil fill and from seeps and springs in the foundation of the disposal area and the other requirements for drainage control are met.

(f) Surface water runoff from areas adjacent to and above the fill is not allowed to flow onto the fill and is diverted into stabilized diversion channels designed to meet the requirements of §817.43 and to safely pass the runoff from a 100-year, 6-hour precipitation event.

[48 FR 32929, July 19, 1983]

§817.74 Disposal of excess spoil: Pre-existing benches.

(a) The regulatory authority may approve the disposal of excess spoil through placement on a preexisting bench if the affected portion of the preexisting bench is permitted and the standards set forth in §817.102 (c), (e) through (h), and (j), and the requirements of this section are met.

(b) All vegetation and organic materials shall be removed from the affected portion of the preexisting bench prior to placement of the excess spoil. Any available topsoil on the bench